

214

AN ANALYSIS OF PARTICIPATION OF KANSAS
PUBLIC SCHOOLS IN THE NATIONAL DEFENSE
EDUCATION ACT OF 1958, TITLE III

by

465

GARY DUANE LATIMER

B. A., University of Wichita, 1960

A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1965

Approved by:


Major Professor

ACKNOWLEDGMENT

The writer wishes to acknowledge his indebtedness to Dr. O. K. O'Fallon, his major instructor, for his assistance, suggestions and criticisms. He also wishes to express his gratitude to Dr. G. L. Cleland of the Kansas State Department of Public Instruction for his cooperation in making the necessary records available for study. A last expression of gratitude is intended for my wife, Jean, for her encouragement and support.

TABLE OF CONTENTS

	PAGE
I. INTRODUCTION	1
II. THE PROBLEM	5
State of Problem	5
Importance of the Study	5
Definitions	6
Methods and Procedure	7
Sources of data	7
Procedure for securing sample	7
III. REVIEW OF LITERATURE	10
IV. THE STUDY	27
Purpose	27
Findings	28
Extent of participation	28
Analysis of Approved Projects	34
Changes in Project Emphasis from 1958-59 to 1963-64	40
V. SUMMARY	54
BIBLIOGRAPHY	58
APPENDIX	61

LIST OF TABLES

TABLE	PAGE
I. Allocations Requested and Received by 45 Districts under N.D.E.A. Provisions	19
II. Title III Project Approvals in Kansas, 1958-1961	21
III. Number of Science Courses Offered by Schools in Kansas	22
IV. Number of Schools in Kansas Offering Four Sciences	22
V. A Summary of Approved Title III Projects in Kansas, 1958-1964	31
VI. Analysis of 100 Selected Kansas School Districts Approved for N.D.E.A. Funds, 1958-59 in Terms of Enrollments and Percents of Funds Allocated	35
VII. Analysis of 100 Selected Kansas School Districts Approved for N.D.E.A. Funds, 1963-64 in Terms of Enrollments and Percents of Funds Allocated	36
VIII. A Comparison of Assessed Valuations and Enrollments for 100 Selected Kansas School Districts, 1958-59	38

TABLE

PAGE

IX.	A Comparison of Assessed Valuations and Enrollments for 98 Selected Kansas School Districts, 1963-64	39
X.	Assessed Valuations of 100 Selected Kansas School Districts Approved for Title III Funds, 1958-1959	41
XI.	Assessed Valuations of 98 Selected Kansas School Districts Approved for Title III Funds, 1963-1964	42
XII.	Number and Per Cents of Assessed Valuations Per Pupil for 100 Selected Kansas School Districts, 1958-1959	43
XIII.	Numbers and Per Cents of Assessed Valuations Per Pupil for 98 Selected Kansas School Districts, 1963-1964	44
XIV.	A Comparison of 100 Selected Kansas Elementary and Secondary School Requests for Title III Funds, 1958-59 and 1963-64	46
XV.	Analysis of Cost Categories for 100 Title III Projects, 1958-1959	48
XVI.	Analysis of Cost Categories for 100 Title III Projects, 1963-1964	49

TABLE

PAGE

XVII.	An Analysis of Title III Projects	
	Approved for 100 Selected Kansas	
	Schools Prior to Fiscal Year Ending	
	June, 1964	51
XVIII.	An Analysis of Title III Projects	
	Approved for 98 Selected Kansas	
	Schools Prior to Fiscal Year Ending	
	June, 1964	52

LIST OF FIGURES

FIGURE	PAGE
1. Title III Project Approvals in Kansas, 1958-1964	29
2. A Summary of Approved Title III Projects in Kansas, 1958-1964	33

I. INTRODUCTION

Significant events in educational history are rare phenomena. Rarer still are events of this kind that receive not only instant recognition, but provoke widespread national reaction as well.

The enactment of Public Law 85-864, hereafter referred to as the National Defense Education Act, represents such an event in American education. Responding to a universal desire on the part of all good citizens for quality education for their children, the Congress of the United States passed, in 1958, the National Defense Education Act in recognition of the vital role education plays both in the immediate defense of the Nation and in its ultimate survival. Among the ten titles of the Act is one of particular importance to the elementary and secondary schools: Title III, authorizing Federal payments to the States to strengthen instruction in science, mathematics, and modern foreign languages, and for State supervisory and related services in those areas.

These activities have stimulated a nationwide evaluation of school programs to the extent that many communities are building stronger school curriculums through acquisition of new teaching materials, equipment, and laboratories; and through improved counseling services.

During this decade and beyond, there will be an increasing demand for persons skilled in the fields of science, mathematics, and modern foreign languages. Automation will require technicians; national defense will require scientists and mathematicians; and world commitments by both business and Government will require skilled linguists.

The attention in the United States had been focused more and more upon the school as the source of training for the labor force, whose purpose was to maintain a previously achieved high standard of living. This attention became more sharply focused with the launching of the first Soviet satellite. There was a sudden questioning concerning the subjects being taught in the schools and their possible value in the future.

The subjects of science and mathematics, since they were direct contributors to our sources of engineers and scientists, were critically examined as a possible cause of shortages of technical personnel. Before 1958, only one out of three high school students took chemistry; only one out of four took physics. Only one out of three took algebra; one out of eight, trigonometry or solid geometry.

A need for more foreign language to be taught was noted. Only one of seven high school students took a modern foreign language. In fact, less than half of all public

high schools offered courses in modern foreign languages.

The Government recognized the problem and began a number of projects designed to change the situation. The National Science Foundation (N.S.F.) conducted a number of institutes to improve the teaching of the critical subjects of science, mathematics and modern foreign language.

Many schools were handicapped by the lack of equipment and teaching aids necessary to implement new curriculums being developed for science, mathematics, and foreign languages. To make such curriculums more challenging, considerable money was spent in equipping and furnishing laboratories and classrooms used for instruction of science, mathematics and modern foreign language.

Industry, which shared this vital interest, made available through a number of foundations, aid to increase the Nation's science and technology potential.

The wholehearted response of the States to National Defense Education Act assistance reflected sincere efforts to upgrade instruction and provide challenging curriculums. Many state leaders realized that the struggle for the maintenance of our way of life would be decided to a great extent by the work done in mathematics, science and foreign language laboratories and classrooms.

Merits of the Act were continuously being hailed by its supporters, while the critics, too, were "having a

field day". Chief among criticisms was the attitude of the schools toward "easy" money of the National Defense Education Act's matching fund provisions. The poor utilization of equipment purchased under the Act has received attention from both advocates and opponents. Many feel the financially disadvantaged districts suffered, because of limited purchasing power.

The National Defense Education Act will, in all probability, become a major reference point in educational history because of its widespread implications, and because of the precedents which it has established.

With this as a background, a study was made of schools in the State of Kansas to find out their response to one of the most controversial pieces of educational legislation in our time.

II. THE PROBLEM

Statement of Problem

It was the purpose of this study (1) to determine the extent of participation of Kansas public schools in the implementation of Title III of the National Defense Education Act of 1958; (2) to make an analysis of the purchases made under the provisions of Title III funds, showing the characteristics of approved projects as they related to such factors as school size, valuation, and subject-area emphasis; (3) to reveal possible changes in types of projects submitted by schools over a period, extending from fiscal year 1959 through fiscal year 1964.

Importance of the study

In recent years an increasing demand for persons skilled in the fields of science, mathematics, and modern foreign languages was apparent. Federal government attention became sharply focused to areas of science and mathematics because of the direct relationship to industry and technology, so vital to the development of the nation's capabilities; and foreign languages, equally vital in world affairs. The wholehearted response of the States to Federal assistance reflected sincere desire to meet the challenge facing the country. Since the enactment of the National Defense Education Act in 1958, Kansas public schools have

received in excess of four million dollars for classroom equipment and materials. In this study an attempt was made to determine the extent of participation of Kansas Schools in the program and to analyze the expenditures of Federal funds to Kansas schools under this Act.

Definitions

N.D.E.A. The National Defense Education Act of 1958, when enacted, was known as Public Law 85-864. Throughout this report the term "N.D.E.A." or "the Act" will be used in reference to this Federal program.

Title III. The N.D.E.A. has 10 titles. Title III, the concern of this study, provides for two kinds of assistance to elementary and secondary schools: (1) equipment and remodeling (2) State supervisory services. Funds allocated under Title III are for use in strengthening programs in science, mathematics, and modern foreign languages.

Title V-A. Reference to this term is made at one point in the study. Title V-A provides for the establishing and maintaining of guidance and counseling programs and testing programs in secondary schools. It is not of particular importance to this study.

Matching Funds. Throughout the report of this

investigation, the term "matching-funds" or "matched-dollars" will be interpreted as the plan under which funds are allocated to schools. Local Kansas school districts in order to qualify for project funds must have the approval of the State agency. This is authorization to purchase equipment or to initiate minor remodeling projects. Upon receipt of purchases or services, reimbursement of 50 percent of the total cost is made to the school district.

Methods and Procedure

Sources of Data. A visit to the Topeka offices of Dr. G. L. Cleland, director, Division of Instructional Services, Kansas State Department of Public Instruction, and administrator of the N.D.E.A. for Kansas, conformed the cooperation of that office and the accessibility of necessary records.

The official application forms submitted by districts and approved for Title III projects served as the prime source of data for the study. In addition, much useful data were gained from official reports supplied by Dr. Cleland's office.

Official forms of application for Title III projects, revealed data which could be secured and utilized in the study. (See Appendix)

Procedure for securing sample. In making a compar-

ison of factors such as school enrollment, valuation, subject-area emphasis, etc., the decision was made to collect a random sample of 100 approved Title III projects for each of the fiscal years, 1958-59 and 1963-64. From 1958-59 records on file, the procedure called for the finding of: (1) the total number of approved projects in the areas of science, mathematics, and foreign languages. (2) the percentages of projects in each area were compared with the total number of approvals in all areas. For fiscal year 1958-59, 84 per cent of Kansas approved projects were for science. Of the 100 selected Kansas school applications reviewed, for 1958-59, 84 were science projects. The number of mathematics and modern foreign language applications were selected in the same manner for the 1958-59 and 1963-64 sampling.

In selecting applications for examination in science, every third file beginning with file number 1 was used until 84 had been examined. The process was repeated in selecting applications in both the areas of mathematics and foreign language with the exception: for mathematics every third file was examined beginning with file number 2, until ten had been reviewed, while every third file for foreign language was used beginning with file number 3 until six were obtained.

The exact procedure was repeated in determining the

100 random cases from fiscal year 1963-64, which served as the basis for comparisons in this study. However, for the 1963-64 selection, every seventh file was examined.

III. REVIEW OF LITERATURE

Much has been written in regard to the impact of the National Defense Education Act, Title III, its great stimulation and its unwarranted infringements. Only a brief summary of work done which closely relates to the problem at hand will be given here. Some of the report was designed to confirm some contentions about the impact upon Kansas schools and some of the report was planned to reveal the overall relationship of school districts toward National Defense Education Act funds.

Different characteristics of the National Defense Education Act have caused much controversy about how the program affected education. In a report for the National Association of Secondary School Principal's Bulletin, George L. Cleland and others discussed the amount of help schools could derive from the Act. Cleland's view was that there was much to be gained.¹ He expressed the idea that generally the two most crucial problems, in virtually all states, are adequate finance and qualified teachers. As a result, Federal funds enabled districts to provide badly needed instructional equipment and material, and to a high degree

¹G. L. Cleland, "What and How Much Help Can Schools Derive from Provisions of the N.D.E.A.," National Association Secondary Principals Bulletin, 44:23-24, April, 1960.

were responsible for effecting the upgrading of competencies within States. Cleland further claimed the impact of the N.D.E.A. had been evident in Kansas for two reasons. First, because Kansas' present form of support for education is primarily through property taxes at the local level, Kansas state support is well below the national average. Federal funds somewhat eased the acute problem in cities of high population, thereby providing valuable assistance in securing equipment and materials. Secondly, Kansas is a state of small high schools. Of 623 high schools operating in 1960, approximately 400 had an enrollment of 100 or less. The upgrading of competencies through the National Defense Education Act has had considerable effect where teacher preparation was not suited for many fields.²

Writing in a later issue of the National Association of Secondary Principals Bulletin, Barrows discussed the N.D.E.A. from the standpoint of what might be expected and what were the limiting features.³ The Act, in the opinion of Barrows, was limited in scope. The Act discriminated against the very school systems that needed assistance the

²Ibid., p. 24.

³M. W. Barrows, "What Is the Score on Provisions of the N.D.E.A.," National Association Secondary School Principals Bulletin, 45:136-41.

most. De-emphasis of matching funds aspects of the Act, to make it easier for financially less able districts to participate in the Act, would have reduced undue hardships for many districts. Local needs required funds for health education, education for pre-schoolers, and other worthy goals for which funds were not available under the Act.

Miller and Goldberg reviewed the failings and important side effects of the N.D.E.A.⁴ According to Miller, even experienced educators, as well as the public, can confuse quantity of equipment with quality of education. The adding of equipment and materials will not guarantee desirable change and increase program effectiveness. They further feel the writers of the Act held unrealistic notions of how learning occurs. Exposure to films, filmstrips, television, and up-to-date laboratory equipment will not insure learning. A suggestion offered by the two authors for improving the Act would be to allow local districts to base educational priorities on their needs or other worthy goals for which funds are not available. The N.D.E.A. has already thrown the curriculum out of balance in many districts, they observed.

⁴W. C. Miller, and A. L. Goldberg, "Important Side Effects of the N.D.E.A." Education, 85:106-11, October, 1964.

Nelson argued that funds were misused and quite often wasted in purchasing material for use in elementary schools. He says, "Teachers are unfamiliar with theory or practice of the experimental methods."⁵ In one above-average school system which invited a check of its laboratory equipment, Nelson found nineteen science kits that were left unpacked for more than two years because the teachers were not prepared to make use of them.

Although Title III is specifically concerned with science, mathematics, and modern foreign languages, it was found to have a stimulating effect on other subject areas, according to J. Graham Sullivan, Chief, Bureau of N.D.E.A. Administration.⁶

Sullivan identified the effect of wide-spread re-appraisal of educational programs in a report for the Bulletin of the National Association Secondary School Principals:

The three-year Federal investment of \$109.3 million through Title III and \$33.2 million through Title V-A; the guidance, counseling and testing services provisions of the Act; takes on meaning only when thought of as dollars that have put learning materials and equipment

⁵ L. Warren Nelson, "Wastemakers," Overview, Vol. II (August, 1961) p. 57.

⁶ J. Graham Sullivan, "What and How Much Help Can Schools Derive from Provisions of the N.D.E.A.," National Association Secondary School Principals Bulletin, 44:25, April, 1960.

in the hands of students; audio-visual aids and resource books at the disposal of newly-inspired teachers; and have brought students and counselors together for the first time. Supervisory personnel in participating States increased from 33 in 1958 to 221 in 1962. In-service training workshops and State curriculum guides and units, along with instructional methods and materials showed considerable increases, he pointed out.⁷

Instruction in science, mathematics, and modern foreign language had undergone similar changes affecting both content and numbers of students enrolling.⁸ Hearn reported on the alertness of school districts to qualify for N.D.E.A. monies. Changes were advocated to update the teaching of those subjects. The Act coincided with the development of new science and mathematics curriculums on a national level, and with the popularization of the audio-lingual approach to language instruction. The curriculum was altered, in many cases, to meet entrance requirements in some of the schools of higher learning. Hearn cites United States Office of Education reports showing that altogether through the first three fiscal years, the Office of Education paid to state educational agencies 104.1 million matched-dollars for projects to strengthen instruction in science, mathematics, and modern foreign languages.

⁷Ibid.

⁸Norman E. Hearn, "N.D.E.A.--Its Educational Dividends," *Journal of Secondary Education*, 36:8, December, 1961.

Overall, about two-thirds of the projects were for amounts less than \$1000 in fiscal year 1960. Roughly 75 per cent of the funds were for strengthening science instruction. About eight per cent were for mathematics; and the remaining 17 per cent were for modern foreign language. About 16 per cent of the projects were for elementary schools; 46.6 per cent in the secondary schools. Many schools were now teaching advanced biology, chemistry and physics, whereas, before only the basic science courses had been taught. In mathematics, several schools are now teaching a senior-year course comparable to the college freshman offering. The per cent of high school youth electing a modern foreign language increased from approximately 16 per cent in 1958-59 to 20 per cent in 1959-60. At the same time foreign language instruction took on a new characteristic. The widespread adoption of electronic installations increased from a national pre-N.D.E.A. level of 64 to approximately 2,500 by 1961. A major shift in emphasis had the audio-lingual approach replacing the grammar-translation approach.

There are numerous reports available to show how the picture looked in the state of Kansas. In an unpublished report of the Kansas State Department of Public Instruction data were given showing increases in foreign language

offerings and enrollments from 1958 to 1960.⁹ Modern foreign language programs in Kansas were largely limited to first and second class cities and consisted of only two-year sequences of study in any one language.¹⁰ There were no language laboratories, very few tape recorders or other electronic teaching aids, almost no teachers with native or near-native ability in a foreign language, and little sincere interest on the part of students in mastering a second language. In addition, the number of modern foreign language programs in elementary schools could have been counted on one hand.¹¹ Since laboratories of one type or another were established in fifty-four high schools and eight junior high schools in the state.¹² The use of language laboratories was not limited to large school systems. Several schools with enrollments of less than 100 students took advantage of this means of upgrading language programs. In 1958 there were 9,333 junior high and high school students enrolled in modern foreign languages, in

⁹Foreign Language Offerings and Enrollments, Topeka: Kansas State Department of Public Instruction, 1961.

¹⁰Adel F. Throckmorton. A Progress Report of NDEA Title III Activities in Kansas, 1958-1961. Kansas State Department of Public Instruction, 1961.

¹¹Ibid.

¹²Ibid.

1959 there were 14,488, and in 1960 there were 18,322.¹³

Sequences of study in French, Spanish, and German have now been extended to three and four years. Russian has been added to the curriculum of at least one high school. A steady development of languages programs on the elementary level has been noted. In 1958 there were fewer than five, while in 1961 the count showed more than 35 schools had made acceptable ventures in this area.

It was also noted that much had been written upon the educational opportunities being a function of the size of the school.^{13*} John M. Burger felt that some of the inequality was due to teacher training variations and to the common practice of teaching out of major fields, as is the case in many small schools.

Examination of 1,037 reports of Kansas school administrators for the 1957-58 academic year revealed that (1) 43.2 per cent of the mathematics teachers teach in a district having less than 100 students (2) 64.4 per cent of the mathematics teachers teach in schools operating under the 8-4 organizational plan.

¹³Ibid.

^{13*} John M. Burger. Background and Academic Preparations of the Mathematics Teachers in the Public High Schools of Kansas 1957-1958. Emporia Research Studies, Vol. 7, No. 3, March, 1959.

Below appears some findings from Burger's study concerning mathematics teachers in Kansas.¹⁴

NUMBER OF MATH TEACHERS	%	NUMBER OF MATH SUBJECTS TAUGHT
*326	31.4	1
396	38.2	2
214	20.6	3
101	9.7	4 or more

Total 1,037

* 236 of the 326 taught only one section of that subject.

In 1960, a survey was conducted to shed light on the state level implementation of N.D.E.A. through direct communication with most state departments of education in the nation. A follow-up of the survey was made by Campbell and Hencley late in 1960.¹⁵ Table I is a part of that follow-up report. Twenty-four of the forty-five districts served American cities of 300,000 or more; 21 others served smaller cities in Illinois. Data presented were based upon questionnaire responses.

A 1961 report prepared by the State Department for

¹⁴Ibid.

¹⁵R. F. Campbell and S. P. Hencley. "Accept N.D.E.A. Money . . . But With Doubts and Reservations." Nations Schools, 66:80, Oct. 1960.

TABLE I

ALLOCATIONS REQUESTED AND RECEIVED BY 45 DISTRICTS UNDER N.D.E.A.
PROVISIONS (AS OF MARCH 1, 1960)**

Program	No. of Districts Requesting Allocations	No. of Districts Not Requesting Allocations	Total Allocations Requested	Allocations Received*	% of Total Requests Allocated
Equipment for science.....	26	12	\$2,490,770	\$2,315,967	93
Equipment for mathematics..	26	19	1,639,361	1,461,532	89
Equipment for foreign languages.....	30	15	2,192,208	1,943,129	89
Assistance toward minor remodeling.....	14	31	295,418	186,011	63
Program for testing students.....	25	20	191,399	109,621	57
Program for guidance and counseling.....	32	13	1,136,817	729,093	64
Improvement of vocational education.....	14	31	593,042	415,514	70
Totals			\$8,539,015	\$7,160,867	

*Allocations to a number of school districts are still due.

**R. F. Campbell, and S. P. Hencley, "Accept N.D.E.A. Money....But With Doubts
and Reservations." Nations Schools, 66:80, October, 1960.

the N.D.E.A. authorities presented data from approved Title III projects for Kansas and amounts requested and spent in the various years.¹⁶ Table II on page 21 shows the breakdown of projects by subject areas. These data were expanded and included in the report at a later point.

Other reports which have been published could be used for comparison. Andrews and Breukelman of Emporia published reports of the offerings and enrollments in 687 Kansas public high schools.¹⁷ A later study of Breukelman and Frazier surveyed significant changes in 604 Kansas school offerings between 1952 and 1961. Breukelman noted a significant increase in both numbers and percentages of science teachers since 1954. Also 31 per cent of Kansas secondary school science teachers were found to be full-time science teachers, while 69 per cent taught one or more non-science subjects.¹⁸

¹⁶Throckmorton, loc. cit.

¹⁷Ted F. Andrews and John Breukelman. "Offerings and Enrollments in the Secondary School Sciences", Emporia State Research Studies, Emporia Graduate Division of Kansas State Teachers College, 1956.

¹⁸John Breukelman and Ralph P. Frazier. Offerings and Enrollments in the Secondary School Sciences. Emporia Research Studies, 1961.

TABLE II

TITLE III PROJECT APPROVALS IN KANSAS, 1958-1961**

	No. Projects	Amounts*	% of Total Funds
SCIENCE	1,278	\$2,530,972	79.3
MATHEMATICS	242	109,582	3.4
MODERN FOREIGN LANG.	221	552,957	17.3
TOTALS	1,741	\$3,193,511	100.00

*Amount includes both Federal and local shares of approved projects.

**Adel F. Throckmorton, A Progress Report of NDEA Title Activities in Kansas, 1958-61. Kansas State Department of Public Instruction, 1961.

Table III indicates little change in the number of science courses offered by senior high schools between 1953-1956. However, the shift was a marked one between the time of the 1956-61 studies. There appeared to be a trend to offer increasing numbers of science courses at all levels of school population. A conspicuous shift is the number of schools offering but one science. Fairly large increases in the numbers of schools offering three and four science courses occurred between 1953 and 1961.

Table IV points up the fact that general science as a ninth grade subject had steadily lost ground since the

TABLE III

NUMBER OF SCIENCE COURSES OFFERED BY SCHOOLS IN KANSAS*

Year of Study	No. of Schools	None		One		Two		Three		Four	
		No.	%	No.	%	No.	%	No.	%	No.	%
1953	679	11	.2	113	20	230	34	194	29	110	16
1956	687	14	.2	149	22	229	33	189	28	114	17
1961	604	--	--	26	4	137	23	249	41	192	32

*John Breukelman and Ralph Frazier. Offerings and Enrollments in the Secondary School Sciences, Emporia Research Studies, 1961.

TABLE IV

NUMBER OF SCHOOLS IN KANSAS OFFERING FOUR SCIENCES**

	GEN. SCIENCE	BIOLOGY	CHEMISTRY	PHYSICS
1953 Study (679) *	569	482	208	232
%	84	71	31	34
1956 Study (687)	507	500	219	265
%	74	73	31	39
1961 Study (604)	464	565	407	313
%	77	94	67	52

*Number in parentheses indicates schools sampled.

**John Breukelman and Ralph Frazier. Offerings and Enrollments in the Secondary School Sciences. Emporia Research Studies, 1961.

1953 study. Figures should not be interpreted as meaning that approximately one-fourth of the schools did not teach ninth grade science. Rather, other kinds of programs were being developed to care for the wide variety of pupil needs. A distinct trend in the popularity of biology was evident (94%). For many students it represented their last science course.

Finkel was another who wrote regarding choices of science careers. In studying 21 schools in all parts of the United States, involving 594 high school senior students and 56 college freshmen, he cited four pertinent reasons most frequently given by the selected students for not choosing a science career.¹⁹ They were: (1) too difficult (2) poor elementary school background (3) uninteresting due to poor teaching (4) desirable courses scheduled in competition with sciences. The causes lie somewhere in the schools, in the preparation of its teachers, the teaching psychology, laboratory facilities, and the guidance services provided.²⁰

Herbert A. Smith has provided a detailed analysis of Kansas approved projects under Title III in the University

¹⁹Maurice Finkel, "Factors Affecting the High School Students Choice Regarding a Science Career," Science Education, 45:153-57, March, 1961.

²⁰Ibid., p. 155.

of Kansas Bulletin of Education in May, 1962.²¹ Smith identified the major purchases under Title III by Kansas school districts through fiscal year 1959. In terms of numbers, language and audio-visual materials and equipment purchased totaled 23.9 per cent of all purchases. Others were: furniture (15.3 per cent), minor remodeling (13.7 per cent), light and wave motion equipment (12.3 per cent), printed matter (11.2 per cent) and microscopes and optical instruments (10.1 per cent). Mathematics equipment purchases numbered 1.1 per cent during the period.

Additional data are given on the disbursement of N.D.E.A. funds in an unpublished five-year progress report on Title III by the Director of Instructional Services and Title III Administrator for Kansas, George L. Cleland.²² Cleland's unpublished report, which was expanded for use in the findings of this report, provided a great amount of basic data vital to this study.

A sizeable majority of those qualified to speak out on the N.D.E.A. agreed that the advantages to be gained did

²¹Herbert A. Smith, "Purchases Under Title III of N.D.E.A.," University of Kansas Bulletin of Education, 16:3, May, 1962.

²²George L. Cleland, "Five Year Report on Title III, N.D.E.A., 1959-63," Topeka: Kansas State Department of Public Instruction, 1963, (mimeographed).

indeed justify the means used to gain them. Likewise, one need not read far to find arguments of discrimination, waste, and infringement because of such legislation.

Without doubt, the Act has had an important affect upon educational programs over the nation. The literature reviewed revealed the general patterns established in the early stages of N.D.E.A. from a nation-wide standpoint, and more specifically those aspects of the Act as viewed on the Kansas educational scene.

This study offers an opportunity to assess the impact and participation, as well as the transitions made necessary by earnest desires to keep pace with a changing world.

Title III influenced revisions in Kansas schools. Upgrading of competencies resulted through federal programs supporting graduate study and institutes. Classrooms and laboratories were remodeled to accommodate new equipment which served to strengthen existing programs and made new ones possible. Increases in new offerings, visible stimulation to subject-areas not provided for under the Act, and expanded guidance services were a few of the advantages cited by educators.

Science instruction was strengthened considerably. With the help of Federal funds, state educational agencies expanded their corp of specialists. Before N.D.E.A., only 33 science, mathematics, and modern foreign language super-

visors were available to serve local schools, according to Office of Education records. By the end of fiscal year 1961, more than 200 state supervisors were at work. Science programs received 79.3 per cent of the total funds for the first three years of the program.

By the end of 1961, sixty-two secondary and thirty elementary schools had established language laboratory facilities. Many schools reported science and mathematics offerings of senior-year courses comparable to the college freshman courses.

The report to follow will present many other aspects of N.D.E.A.'s influence as it relates to Kansas public schools.

IV. THE STUDY

Purpose

It was the purpose of this study (1) to determine the extent of participation of Kansas public schools in the implementation of Title III of the National Defense Education Act of 1958; (2) to make an analysis of the purchases made under the provisions of Title III of the Act, showing the characteristics of approved projects as they related to such factors as school size, valuation, and subject-area emphasis; (3) to identify possible changes in types of projects submitted by schools between fiscal year 1959 and fiscal year 1964.

This portion of the study deals with the first consideration--the impact and implementation of the Act since its enactment. The materials from which the most of these data came were secured from the official records and reports on file in the offices of the State Department of Public Instruction, Topeka, Kansas. Additional data were supplied from reports released by the U.S. Office of Education.

An attempt was made to show the picture of progress during fiscal year 1958-59 through fiscal year 1963-64 toward the accomplishing of the goals of Title III in Kansas in particular, and the Nation in general.

Data supplied show (1) how the number of subject

field requests for science, mathematics and modern foreign language (2) the breakdown of science, mathematics and modern foreign language requests and expenditures by per cents (3) yearly averages for requests and funds allocated by those subject areas for a six year period.

Findings

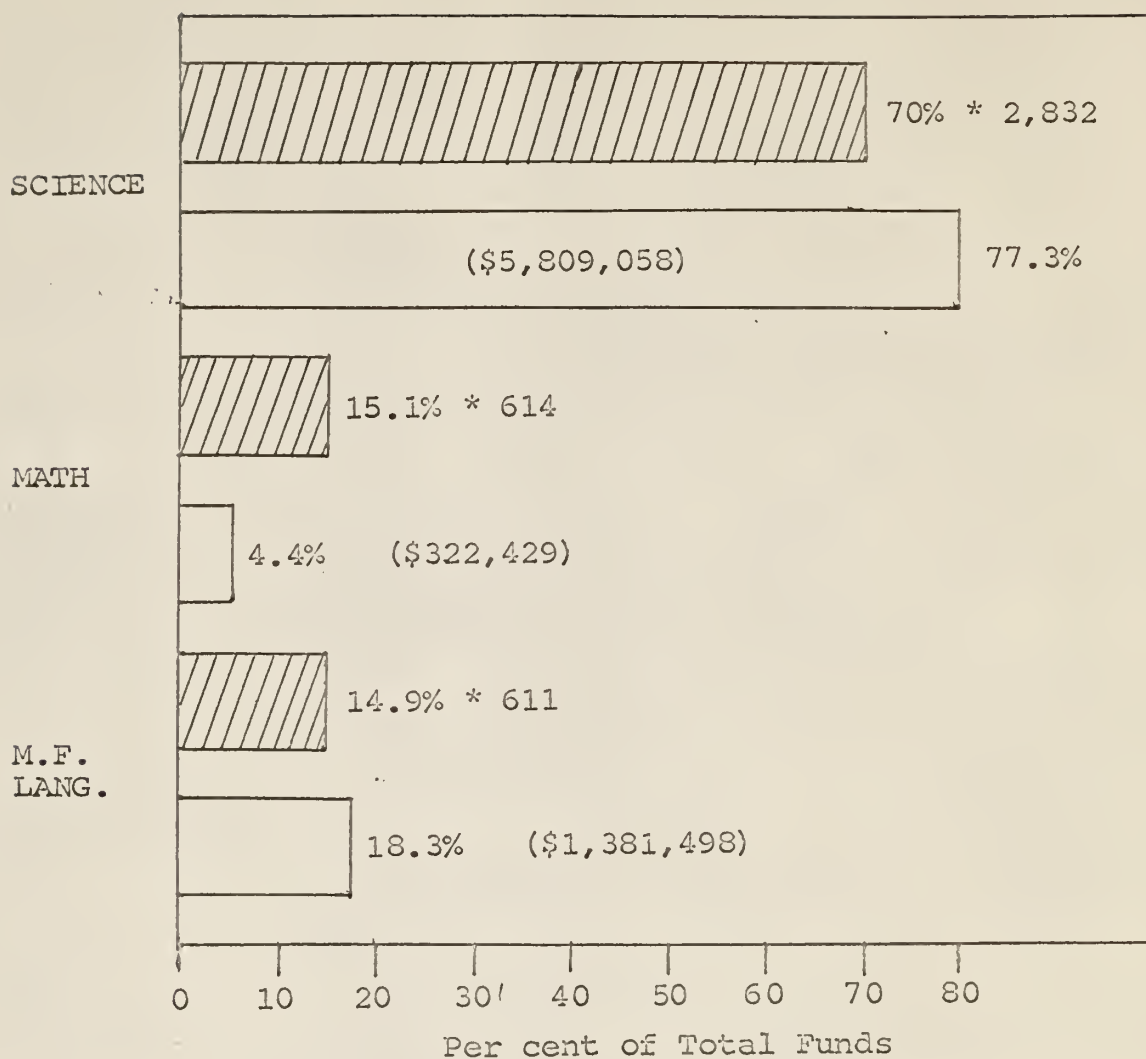
Extent of Participation. In the first five fiscal years under the N.D.E.A., the Federal Government paid out \$172.2 million for equipment and remodeling projects to local public schools. According to the State reports, money was distributed among the three subject fields approximately as follows:

- 74 per cent for science
- 9 per cent for mathematics
- 17 per cent for modern foreign languages.

In the same five years the Kansas educational agency approved projects in these three subject fields totaling \$6.2 million for equipment and remodeling. Reports show monies distributed in Kansas among the three subject areas to have been approximately as follows:

- 77 per cent for science
- 4 per cent for mathematics
- 19 per cent for modern foreign languages.

Figure 1, page 29, is an expanded version of a five-



*Figures represent the total number of approved projects for the years, 1958-1964.

FIGURE 1.

TITLE III PROJECT APPROVALS IN KANSAS, 1958-1964.

(Amounts include both local and Federal shares.)

 Per cent of total Kansas projects approved.

 Per cent of total funds granted in Kansas.

year report to the N.D.E.A. from Kansas authorities. Figure 1 was expanded to include the breakdown of approved projects by both funds and subject fields through six years of N.D.E.A. ending in June, 1964. Science accounted for the largest number of approved Kansas projects (70 per cent) as well as the largest amount of money spent (77.3 per cent). The Kansas distribution parallels that found for the Nation which were given previously. Mathematics approvals amounted to 15.1 per cent of all projects and 4.4 per cent of all funds disbursed. During the same period modern foreign language programs were receiving 14.9 per cent of the project approvals and 18.3 per cent of the total funds granted.

Title III estimated total costs and percentages of approved projects involving local, State, and Federal funds for fiscal years 1959-62 show:

	The Nation	Kansas
Science	\$238.9 million (73.8%)	\$3.6 million (79.3%)
Math	\$ 27.7 million (8.6%)	\$169,844 (3.4%)
M.F.L.	\$ 57.0 million (17.6%)	\$.9 million (17.3%)

Table V reveals a more complete analysis of Kansas' N.D.E.A. participation from the time the provisions were made available to local districts until the time data for this study were compiled in August of 1964. A comparatively small number of project applications were received by the State agency in 1958-59 as compared with the number for

TABLE V

A SUMMARY OF APPROVED TITLE III PROJECTS IN KANSAS,
1958-1964

YEAR	SCIENCE		MATH		M.F. LANG.	
	No.	Amount*	No.	Amount*	No.	Amount*
1958-59	248	\$ 599,704	29	\$23,062	17	\$39,427
	(84.4%)	(90.6%)	(9.8%)	(3.5%)	(5.8%)	(5.9%)
1959-60	533	637,918	84	17,520	93	290,245
	(75.1)	(67.4)	(11.8)	(1.9)	(13.1)	(30.7)
1960-61	555	1,224,154	143	63,774	122	223,540
	(67.7)	(81.2)	(17.5)	(4.2)	(14.8)	(14.6)
1961-62	495	1,088,652	115	65,488	128	343,008
	(67.0)	(72.7)	(15.6)	(4.3)	(17.4)	(23.0)
1962-63	496	1,265,371	105	57,810	126	264,851
	(68.2)	(79.8)	(14.4)	(3.6)	(17.4)	(16.6)
1963-64	505	993,259	138	94,775	125	220,427
	(65.8)	(65.8)	(17.9)	(7.4)	(16.2)	(16.8)
Average (6 year)	472	968,176	102	53,738	101	230,249
	(71.3)	(76.2)	(14.5)	(4.1)	(14.1)	(17.9)

*Amount includes both local and Federal shares of approved projects.

succeeding years. The explanation for this was that after the enactment of the N.D.E.A. in September, 1958, it was necessary for the State plans to be drawn up and approved by the United States Commissioner of Education as outlined in the legislation. All of this took time, and the result was that in 1958-59 there were only a few months for local districts to file project requests and gain approvals. Even though the first year was an abbreviated one, the number and types of applications and approvals closely followed the pattern of later years, with the exception of modern foreign language projects approved (5.8 per cent). It is probably that such projects involved larger sums of money, and more time and attention in planning a language facility was required than in ordering items for science or mathematics purposes. A severe shortage of certified foreign language teachers also caused delay in this field.

Data from Table V shows also a detailed breakdown by subjects, the number of projects and amounts approved over a six year period, 1958-1964. Yearly averages for this six year period show that roughly \$76 of every \$100 spent went for science purposes, while mathematics and foreign languages were receiving \$4 and \$18 respectively.

Figure 2 graphically depicts data presented previously in Table V.

PER CENT

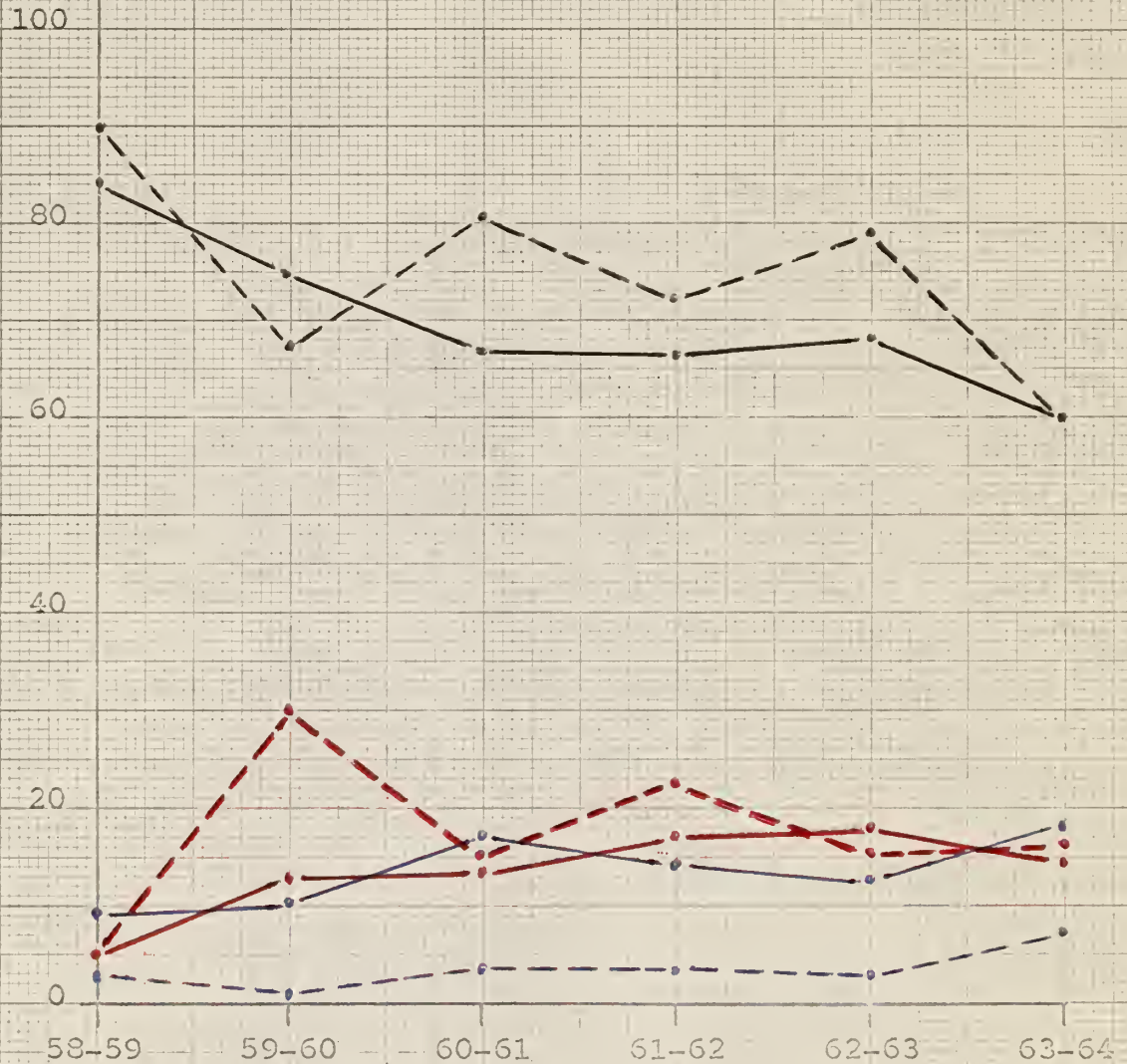


FIGURE 2

A SUMMARY OF APPROVED TITLE III PROJECTS IN KANSAS, 1958-1964
 (BASED ON DATA FROM STATE DEPT. PUBLIC INSTRUCTION
 TOPEKA, OCTOBER 16, 1963)

% of total projects

- (Sci.)
- (Math.)
- (M.F.L.)

% of total funds

- -• (Sci.)
- -• (Math.)
- -• (M.F.L.)

Analysis of Approved Projects

The prime considerations for this portion of the study center around possible relationships existing between N.D.E.A., Title III project requests and school district enrollments and assessed valuations. Both enrollment and valuation classifications were selected with no specific basis for such groupings.

Kansas is a state of small schools. This fact was clearly brought out when examining the data used in this study. A greater number of all elementary and secondary schools gaining project approvals under Title III were found to have enrollments of less than 300 students. These same schools accounted for the greatest share of expenditures by all schools for both years considered in this part of the study, 1958-59 and 1963-64.

Tables VI and VII, found on pages 35 and 36 respectively, show relationships between elementary and secondary schools and enrollments as they pertain to Title III benefits. It was found that a slight decrease occurred in the number of elementary school requests and the per cent of total funds expended by elementary schools between fiscal years 1958-59 and 1963-64.

Of the 100 schools examined for the year 1958-59, 36 were elementary schools. These thirty-six schools received 26.2 per cent of the total funds. For 1963-64, 28

TABLE VI

ANALYSIS OF 100 SELECTED KANSAS SCHOOL DISTRICTS
APPROVED FOR N.D.E.A. FUNDS 1958-1959 IN
TERMS OF ENROLLMENTS AND PERCENTS
OF FUNDS ALLOCATED

Enrollment	Number of Selected Schools		Per cent of Total Sampling		Per cent of Funds		Per cent of Total Funds	
	Elem.	Sec.	Elem.	Sec.	Elem.*	Sec.**	Elem.	Sec.
0-99	6	23	16.7	36.1	2.9	23.1	.8	16.9
100-299	13	17	32.2	26.5	28.9	16.5	7.6	12.2
300-499	4	7	11.2	11.0	19.2	15.4	5.0	11.3
500-699	4	4	11.2	6.6	16.9	9.3	4.4	6.9
700-899	4	5	11.2	7.8	8.4	12.3	2.2	9.0
900-1099	1	5	2.7	7.8	3.8	7.7	1.0	5.7
1100-1499	1	1	2.7	1.4	8.0	6.5	2.1	4.9
1500-1999	1	--	2.7	--	5.3	--	1.4	--
2000-2999	1	1	2.7	1.4	.8	9.1	.2	6.8
3000-over	1	1	2.7	1.4	5.8	.1	1.5	.1
Totals	36	64	100.0	100.0	100.0	100.0	26.2	73.8

*Total Elementary Expenditures -- \$32,648.28

**Total Secondary Expenditures -- \$91,832.71

TABLE VII

ANALYSIS OF 100 SELECTED KANSAS SCHOOL DISTRICTS
APPROVED FOR N.D.E.A. FUNDS 1963-64 IN
TERMS OF ENROLLMENTS AND PERCENTS
OF FUNDS ALLOCATED

Enrollment	Number of Selected Schools		Per cent of Total Sampling		Per cent of Funds		Per cent of Total Funds	
	Elem.	Sec.	Elem.	Sec.	Elem.*	Sec.**	Elem.	Sec.
0-99	6	20	21.5	27.7	9.9	11.9	1.6	10.1
100-299	8	26	28.7	36.1	29.5	31.4	4.5	26.3
300-499	6	7	21.5	9.7	14.5	11.4	2.3	9.6
500-699	3	6	10.8	8.3	10.2	38.4	1.6	31.9
700-899	1	1	3.5	1.4	.5	.4	.1	.3
900-1099	---	3	---	4.2	---	1.1	---	.8
1100-1499	1	4	3.5	5.6	3.9	2.8	.6	2.3
1500-1999	1	2	3.5	2.8	3.2	.1	.5	.1
2000-2999	1	1	3.5	1.4	18.5	.2	3.8	.2
3000-over	1	2	3.5	2.8	9.9	2.3	1.5	1.9
Totals	28	72	100.0	100.0	100.0	100.0	16.5	83.5

*Total Elementary expenditures -- \$19,597.66

**Total Secondary expenditures -- \$110,199.59

elementary schools accounted for only 16.5 per cent of the total funds allotted, while 72 secondary schools were allotted 83.5 per cent of all funds.

A comparison of school enrollments and assessed valuations was carried out for the 100 selected schools samples for the years 1958-59 and 1963-64. Tables VIII, page 38 and IX, page 39, support to a limited extent both those who argued that small, poor school districts did or did not become further disadvantaged through the distribution of N.D.E.A. funds.

The small school district did participate. Fifty of the 100 selected schools studied for 1958-59 had assessed valuations of less than four million dollars. This number was somewhat smaller in 1963-64, when 31 schools had assessed valuations of less than four million dollars.

These small districts were on record as having submitted few previous project requests. Districts with valuations of two to four million dollars were well represented, but districts with assessed valuations below this range had initiated few previous requests. The dollar amounts of the requests were modest when compared with districts of higher valuation.

Tables X and XI offer an analysis of the valuations for the sampled schools in the two years relevant to this study. It was determined that the 100 schools sampled in

TABLE VIII

A COMPARISON OF ASSESSED VALUATIONS AND ENROLLMENTS
FOR 100 SELECTED KANSAS SCHOOL DISTRICTS,
1958-1959

Valuation in Millions													
Enrollment	0-1	1-2	2-4	4-6	6-8	8-10	10-15	15-20	20-30	30-40	40-up		
0-99	5	1	13	3	4		1						
100-299	1	11	9	5	4	1	1						
300-499		1	4	3			1	1	2				
500-699		1		2	1		1						
700-899	1		3	1			1		1				
900-1099							2						
1100-1499				1			3						
1500-1999					2		1	1	1				
2000-2999							2	1					
Over 3000								2	1		1		
Totals	7	14	29	15	11	1	13	5	4	0	1		

TABLE IX

A COMPARISON OF ASSESSED VALUATIONS AND ENROLLMENTS
FOR 98 SELECTED KANSAS SCHOOL DISTRICTS,
1963-1964

Valuation in Millions														
Enrollment	0-1	1-2	2-4	4-6	6-8	8-10	10-15	15-20	20-30	30-40	40-up			
0-99	3	1	11	3	2	1								
100-299	1	1	7	8	5	1	5	2						
300-499			5	5	1	2	2		1					
500-699			1	1	3	1	1	1						
700-899				3	1		1							
900-1099				1				1						
1100-1499							1	1						
1500-1999			1					1						
2000-2999						1	2		3					
Over-3000							1		2	2	1			
Totals	4	2	25	21	12	6	13	6	6	2	1			

*Assessed valuations were not available for two schools which were affiliated with state colleges.

1958-59 had an average assessed valuation of 13.2 million dollars. For 1963-64, a figure of 20.7 million dollars in assessed valuation was found. These figures are influenced by the fact that one extremely high valuation was used in each years' analysis and, because of the limited sampling of schools.

Inequality in Kansas' educational structure appears to account for the difference in number of dollars supporting each pupil which exists among districts. It was found that schools, in this study, had assessed valuations per pupil ranging from less than \$3000 to nearly \$400,000. A noticeable difference in per pupil valuations was seen between 1958-59 to 1963-64. Table XII shows larger numbers of schools (53 per cent) identified in groups between \$3000 and \$14,999 assessed valuation per pupil in 1958-58, while five years later a similar number (48 per cent) had moved into categories ranging from \$5000 to \$19,999 per pupil.

Changes in Project Emphasis Between 1958-59 and 1963-64

An endeavor was made to reveal possible changes in project requests on the part of participating districts since the inception of N.D.E.A. through fiscal year 1963-64.

The sampling of 200 school district project applications show the patterns to be similar to those of Kansas and the Nation as a whole.

TABLE X
 ASSESSED VALUATIONS OF 100 KANSAS SCHOOLS APPROVED FOR TITLE III
 FUNDS, 1958-1959

Valuation in Millions	Number of Schools	Percent of Group to Total Schools	Number of Elem.	Number of Second.	Ave. Valuation of Group in Millions
0-1	7	7	4	3	.6
1-2	14	14	10	4	1.6
2-4	29	29	6	23	3.0
4-6	15	15	7	8	4.7
6-8	11	11	2	9	7.3
8-10	1	1	--	1	9.6
10-15	13	13	2	11	11.7
15-20	5	5	1	4	18.0
20-30	4	4	--	4	23.6
30-40	--	--	--	--	--
Over 40	1	1	1	--	52.5
Totals	100	100	33	67	13.2*

*Approximately 90 per cent of all schools sampled reported assessed valuations averaging less than 12 million.

TABLE XI

ASSESSED VALUATIONS OF 98 SELECTED KANSAS SCHOOL DISTRICTS APPROVED FOR
TITLE III FUNDS, 1963-1964

Valuation in Millions	Number of Schools	Per Cent of Group to Tot. Schools	Number of Elem.	Number of Second.	Ave. Valuation of Group in Millions
0-1	4	4.1	4	--	.7
1-2	2	2.1	1	1	1.4
2-4	25	25.5	9	16	2.7
4-6	21	21.4	8	13	4.8
6-8	12	12.2	--	12	6.9
8-10	6	6.1	1	5	8.8
10-15	13	13.3	1	12	12.8
15-20	6	6.1	1	5	18.5
20-30	6	6.1	1	5	25.6
30-40	2	2.1	1	1	36.7
Over 40	1	1.0	--	1	109.3
Totals	98*	100.0	27	71	20.7**

*Two schools of the 100 selected had valuations which were not applicable due to affiliation with a State College.

**90% of all schools sampled had valuations under 18.5 million dollars.

TABLE XII

NUMBERS AND PER CENTS OF ASSESSED VALUATIONS PER PUPIL
FOR 100 SELECTED KANSAS SCHOOL DISTRICTS,
1958-1959

Assessed Valuation Per Pupil	Number and Per Cent of Schools in Grouping
\$1,000-\$2,999	3
3,000-4,999	11
5,000-6,999	13
7,000-9,999	14
10,000-14,999	15
15,000-19,999	6
20,000-24,999	4
25,000-29,999	2
30,000-39,999	6
40,000-49,999	8
50,000-69,999	7
70,000-99,999	6
100,000-199,999	3
200,000-299,999	2
Total	100

TABLE XIII

NUMBERS AND PER CENTS OF ASSESSED VALUATIONS PER PUPIL
FOR 98 SELECTED KANSAS SCHOOL DISTRICTS,
1963-1964

Assessed Valuation Per Pupil	Number and Per Cent of Schools in Grouping
\$1,000-\$2,999	2
3,000-4,999	4
5,000-6,999	14
7,000-9,999	11
10,000-14,999	13
15,000-19,999	10
20,000-24,999	5
25,000-29,999	6
30,000-39,999	7
40,000-49,999	12
50,000-69,999	5
70,000-99,999	5
100,000-199,999	2
200,000-299,999	1
300,000-399,999	1
Total	98*

*Two assessed valuations were not available because the schools were laboratory schools at state colleges.

Schools across the country were requesting the greater per cent of funds for science. Modern foreign languages and mathematics followed at a considerable distance. Secondary schools filed more requests and received more funds than elementary schools.

A comparison of elementary and secondary schools projects is given in Table XIV. The table shows the number of project requests for all three subject areas and presents a breakdown of expenditures for all areas by elementary and secondary units. One will note for 1958-59 that nearly six of every ten projects approved were for secondary purposes, while 1963-64 shows an increase to about seven of ten.

The study shows that science maintained a high per cent of the total project approvals, but there was a drop in money spent by both elementary and secondary schools from 1958-59 to 1963-64 for such programs. Modern Foreign Languages showed gains from the standpoint of both project requests and funds expended. The Modern Foreign Language allowances of \$3,401 in 1958-59 increased to \$25,890 in 1963-64. Mathematics showed similar gains. Over the same period funds granted for mathematics increased from \$3,262 to \$15,952.

From the outset, Science requests gained a greater number of approvals and accounted for a larger proportion of the total funds allotted to the Kansas agency. Indi-

TABLE XIV

A COMPARISON OF 100 SELECTED KANSAS ELEMENTARY AND
SECONDARY SCHOOL REQUESTS FOR TITLE III FUNDS,
1958-1959 and 1963-1964

SUBJECT	1958-1959		1963-1964	
	ELEMENTARY	SECONDARY	ELEMENTARY	SECONDARY
M.F. Language	\$415.00 (2)	\$3,401.38 (4)	\$1,276.60 (2)	\$24,613.60 (17)
MATH	1,056.55 (4)	2,205.80 (6)	2,816.00 (7)	13,136.32 (15)
SCIENCE	31,176.73 (30)	86,225.53 (54)	15,505.06 (19)	72,449.67 (40)
TOTALS	\$32,648.28 (36)	\$91,832.71 (64)	\$19,597.66 (28)	\$110,199.59 (72)

Note: Figures in parentheses represent the number of elementary and secondary school projects submitted by the 100 schools samples.

vidual science projects were found to have higher cost ranges when compared with mathematics and modern foreign language requests. Of the 100 Title III projects examined for 1958-59, 1 modern foreign language and 1 mathematics project were found in a cost category exceeding \$1,000. Thirty-six of the 84 science projects reviewed ranged from \$1,000 to \$10,000. By the end of 1964, 5 of 16 projects ranging in cost from \$1,000 to \$10,000 had been approved to modern foreign language. Four of 18 mathematics projects approved by the end of 1964 were in the \$1,000-4,999 category. None of the mathematics projects exceeded \$5,000. Seventeen of 66 science projects cost over \$1,000. Sixteen science projects were approved for less than \$5,000, however 1 project exceeded \$10,000. Thirty-eight per cent of the science projects approved for 1958-59 fell into a cost range of \$1,000 to \$5,000. In 1963-64, 24 per cent were found in that range, while the largest per cent (36) was found to range between \$200 and \$600. Schools were spending less N.D.E.A. money for science after five years of the program.

Tables XV and XVI afford an analysis of cost categories for projects in 1958-59 and 1963-64.

Further analysis of previous Title III projects for Kansas schools was made using school enrollment and assessed valuation as a basis for comparisons. Table XVII, page 51

TABLE XV

ANALYSIS OF COST CATEGORIES FOR 100 TITLE III PROJECTS,
1958-1959

Subject	\$0-99	\$100-199	\$200-599	\$600-999	\$1000-4999	\$5000-9999	\$10,000-up
M.F.L. (6)	0	1	2	2	1	0	0
Math. (10)	3	2	3	1	1	0	0
Science (84)	1	8	24	15	32	4	0
(100)	4	11	29	18	34	4	0

TABLE XVI

ANALYSIS OF COST CATEGORIES FOR 100 TITLE III PROJECTS,
1963-1964

Subject	\$0-99	\$100-199	\$200-599	\$600-999	\$1000-4999	\$5000-9999	\$10,000-up
M.F.L. (16)	1	0	9	1	4	1	0
Math. (18)	1	2	9	2	4	0	0
Science (66)	2	3	24	19	16	0	1
(100)	4	5	42	22	24	1	1

offers data which reveals no lack of participation in Title III programs on the part of the smaller Kansas school districts. Sixty per cent of all schools reviewed had enrollments of less than 300 students. This segment accounted for 155 of the 401 projects approved previous to the fiscal year ending in June, 1964. Of the 100 school files examined, 20 schools had submitted no previous project applications. Eighteen of these 20 schools enrolled less than 300 students.

The smaller schools had given considerable emphasis to Science needs. With one, exception, every single small school with a previous project on record was found to have had at least one Science approval. Over two-thirds of these schools did not have previously approved projects in Mathematics or Modern Foreign Languages. Larger Kansas Schools reflected a favorable balance in terms of project requests in all subject fields.

Data given in Table XVIII, page 52, discloses that approximately 60 per cent of the school districts studied had assessed valuations of two million to eight million dollars. These 58 schools had submitted 175 of the 390 projects previously approved. An important observation from Table XVIII, page 52, is the number of schools not submitting Modern Foreign Language requests over the six-year period. Twenty-four of the twenty-five schools which had assessed valuations of two to four million dollars had not

TABLE XVII

AN ANALYSIS OF TITLE III PROJECTS APPROVED FOR 100 SELECTED KANSAS
SCHOOL DISTRICTS PRIOR TO THE FISCAL YEAR ENDING JUNE, 1964

Enrollment of District	Number of Districts	Number of Previous Projects**	Number of Dist. without Projects	Number of Sci. Projects	Number of Math. Projects	Number of Lang. Projects
0-99	26	58	8	40 (8)*	9 (19)	9 (19)
100-299	34	97	10	61 (11)	14 (25)	22 (21)
300-499	13	52	0	37 (0)	10 (9)	5 (9)
500-699	9	54	0	29 (0)	13 (2)	12 (5)
700-899	2	12	1	4 (1)	4 (1)	4 (1)
900-1099	3	20	0	11 (0)	3 (1)	6 (0)
1100-1499	5	47	0	21 (0)	11 (0)	15 (0)
1500-1999	3	25	0	13 (0)	5 (1)	7 (1)
2000-2999	2	12	0	6 (0)	4 (0)	2 (0)
Over 3000	3	24	1	8 (1)	8 (1)	8 (1)
Totals	100	401	20	230 (21)	81 (59)	90 (57)

*The numbers in parentheses represent the total number of school districts with no previous project request for that subject. 51

**This figure does not include the 1963-64 project applications which were examined, just those prior to 1963-64.

TABLE XVIII

AN ANALYSIS OF TITLE III PROJECTS APPROVED FOR 98 SELECTED KANSAS
SCHOOL DISTRICTS PRIOR TO THE FISCAL YEAR ENDING JUNE, 1964

District Valuation (in millions)	Number of Districts	Number of Previous Projects	Number of Dist. with no. Projects	Number of Sci. Projects	Number of Math. Projects	Number of Lang. Projects
0-1	4	1	3	1 (3)*	0 (4)	0 (4)
1-2	2	2	1	1 (1)	1 (1)	0 (2)
2-4	25	63	5	54 (5)	7 (19)	2 (24)
4-6	21	77	3	49 (4)	14 (12)	14 (12)
6-8	12	35	3	20 (3)	4 (8)	11 (6)
8-10	6	24	0	16 (0)	3 (4)	5 (2)
10-15	13	80	2	38 (0)	17 (5)	25 (3)
15-20	6	34	0	19 (0)	4 (3)	11 (2)
20-30	6	50	0	23 (0)	13 (0)	14 (0)
30-40	2	24	0	8 (0)	8 (0)	8 (0)
Over 40	1	0	2	0 (2)	0 (2)	0 (2)
Totals	98**	390	19	229 (18)	71 (58)	90 (57)

*Numbers in parentheses represent the number of schools having no previous project approvals in that subject.

**Data for two school districts were discarded due to valuations not applicable in comparisons with the other 98 schools.

made application for development of language programs. Twelve schools with assessed valuations between four and six million dollars had not previously requested funds in this area.

V. SUMMARY

During the first five years under the N.D.E.A., the Federal government paid out \$172.2 million for equipment and remodeling projects to the Nation's schools. Nationally, the distribution of money was as follows: 74 per cent for science, 9 per cent for mathematics, and 17 per cent for modern foreign language. In the corresponding period, Kansas approvals in these fields totaled \$6.2 million with the breakdown being: 77 per cent for science, 4 per cent for mathematics, and 19 per cent for modern foreign languages.

Science accounted for the largest number of approved Kansas projects (70 per cent), as well as the largest per cent of monies spent (77.3 per cent).

Kansas matched the national pattern in the three subject areas. Only mathematics fell below the national average of 8.6 per cent of total expenditures. Kansas expended but 3.4 per cent of its total allowance for mathematics projects.

Sixty school districts, of one hundred sampled for fiscal year 1958-59, had enrollments under three hundred students. These sixty school districts accounted for 36.5 per cent of the allotted monies.

Elementary school requests did not equal the secon-

dary schools in either the number of projects submitted or the amount of funds granted. Thirty-six elementary and sixty-four secondary schools were reviewed in the 1958-59 sample. Elementary schools received 26.2 per cent of the total funds. The 1963-64 sampling included twenty-eight elementary and seventy-two secondary schools. Secondary schools gained 83.5 per cent of all funds allowed in 1963-64.

Schools with small enrollments and small valuations, were well represented in Kansas N.D.E.A. approvals. Most small schools emphasized science programs. The smaller schools showed little interest in mathematics and modern foreign language projects. Fifty of the one hundred districts in the 1958-59 phase of the study had assessed valuations under four million. This number had reduced to thirty-one for the year, 1963-64.

Of particular importance were figures found for assessed valuations per pupil. Fifty-three per cent of the school districts sampled in 1958-59 showed assessed valuations between \$3000 and \$14,999. Some districts recorded valuations of nearly \$400,000 per pupil. An increase in per pupil valuation figures was found for the districts sampled in the 1963-64 period. Forty-eight per cent of the districts showed valuations between \$5000 and \$19,999 per pupil.

Kansas schools did not materially alter their aims in project emphasis over the span of six years. Science continued to dominate in numbers of projects and total funds. A distinct decrease in the amount of funds requested for science projects was noted by the end of the six-year period. Elementary and secondary units were cutting down considerably on the purchasing of equipment for science purposes. Mathematics and foreign language project requests did not show such decreases. Science projects showed higher cost ranges than either mathematics or modern foreign language, from the first year on. Mathematics and modern foreign language projects made up but 10 and 6 per cent, respectively, of the selected school requests and approvals for 1958-59. This small number of cases provided a limited basis for study. Compared costs for the 100 selected school district projects in 1958-59, revealed 1 of the 10 mathematics projects and 1 of the 6 modern foreign language projects exceeded \$1,000. Thirty-six of the 84 science projects involved sums of \$1,000 up to \$10,000. In 1964, 17 science projects exceeded \$1,000. Twenty-four (36 per cent) were in the \$200 to \$599 range. Only 1 project in science exceeded \$10,000. Mathematics and modern foreign language projects increased in numbers and dollars in 1963-64. Five of 16 modern foreign language projects were approved in cost categories from \$1,000 to \$10,000 in

1963-64. Four of 18 mathematics projects were approved in cost categories of \$1,000 to \$4,999 in 1963-64.

No lack of participation by smaller Kansas districts could be found. Sixty per cent of all schools reviewed had enrollments under three hundred. This segment accounted for 155 of the 401 projects previously approved for the 100 selected schools involved in the 1963-64 sample. The data disclose that fifty-eight districts in question had assessed valuations of two to eight million dollars. These same 58 school districts submitted 175 of the 390 previous projects.

Unfavorable balance in project emphasis was reflected on the part of many smaller Kansas schools. Twenty-four out of twenty-five school districts with assessed valuations of two to four million dollars in 1963-64, had not made previous application for development of a language program. Twelve schools with assessed valuations between four and six million dollars had not previously requested funds for use in this area.

BIBLIOGRAPHY

SELECTED BIBLIOGRAPHY

- Cleland, George L. "What and How Much Help Can Schools Derive from Provisions of the N.D.E.A.," National Association Secondary School Principals Bulletin, 44:23-24, April, 1960.
- Barrows, M. W. "What Is the Score on Provisions of the N.D.E.A.," National Association Secondary School Principals Bulletin, 45:136-41.
- Miller, W. C. and Goldberg, A. L. "Important Side Effects of the N.D.E.A.," Education, 85:106-11, October, 1964.
- Nelson, L. Warren. "Wastemakers," Overview, Vol. II (August, 1961) p. 57.
- Sullivan, J. Graham. "What and How Much Help Can Schools Derive from Provisions of the N.D.E.A.," National Association Secondary School Principals Bulletin, 44:25, April, 1960.
- Hearn, Norman E. "N.D.E.A. -- Its Educational Dividends," Journal of Secondary Education, 36:8, December, 1961.
- Foreign Language Offerings and Enrollments, Topeka: Kansas State Department of Public Instruction, 1961.
- Throckmorton, Adel F. A Progress Report of N.D.E.A. Title III Activities in Kansas, 1958-1961. Kansas State Department of Public Instruction, 1961.
- Burger, John M. "Background and Academic Preparation of the Mathematics Teachers in the Public High Schools of Kansas, 1957-1958. Emporia Research Studies, Vol. 7, No. 3, March, 1959.
- Campbell, R. F. and Hencley, S. P. "Accept N.D.E.A. Money....But With Doubts and Reservations." Nations Schools, 66:80, October, 1960.
- Andrews, Ted F. and Breukelman, John. "Offerings and Enrollments in the Secondary School Sciences," Emporia State Research Studies, Emporia Graduate Division of Kansas State Teachers College, 1956.

Breukelman, John and Frazier, Ralph P. "Offerings and Enrollments in the Secondary School Sciences," Emporia Research Studies, 1961

Finkel, Maurice. "Factors Affecting the High School Students Choice Regarding a Science Career," Science Education, 45:153-57, March, 1961.

Smith, Herbert A. "Purchases Under Title III of N.D.E.A.," University of Kansas Bulletin of Education, 16:3, May, 1962.

Cleland, George L. "Five Year Report on Title III, N.D.E.A., 1959-1963," Topeka: Kansas State Department of Public Instruction, 1963, (mimeographed)

Kansas Schools, "Secondary School Mathematics Needs Updating," 16:5, October, 1959.

School Life, "Enrollment Summary," 43:31, January, 1961.

United States Department of Health, Education, and Welfare, Stronger Schools, Circular OE-20021A. Washington: Government Printing Office, 1963.

Throckmorton, Adel F. Kansas Biennial Report, Topeka: State Department of Public Instruction, 1958.

Kansas Schools, "Additional Applications Accepted Under the National Defense Act," 16:1, November, 1959.

United States Office of Education. N.D.E.A.--Fiscal Years 1961 and 1962. Document OE 1004-62, Washington: Government Printing Office, 1963.

Exton, Elaine, "School Participation in Implementing Title III," School Board Journal, 138:35, February, 1959.

APPENDIX

STATE DEPARTMENT OF PUBLIC INSTRUCTION

APPLICATION FORM FOR SUBMITTING EDUCATIONAL PROJECT

62

TITLE III - SCIENCE
NATIONAL DEFENSE EDUCATION ACT OF 1958

1. *Name of School _____

Address _____

2. Date Submitted _____

This project is for fiscal 1964 or fiscal 1965
(Encircle One)

3. Total Enrollment of School District _____

4. Cost of Project: Elementary _____

Junior High _____

High School _____

Junior College _____

Total _____

5. Previous Projects Approved
(List amounts approved)

	Science	Math	M. F. L.
1958-59			
1959-60			
1960-61			
1961-62			
1962-63			
1963-64			
TOTAL			

6. Certification:

The local school district is financially able to match funds applied for without penalizing the total educational program of the school.

All expenditures will be made in accordance with provisions of the National Defense Education Act and the rules and regulations of the Kansas State Department of Public Instruction. PAID INVOICES AND SUPPORTING DATA WILL BE KEPT ON FILE FOR AT LEAST THREE YEARS FOR AUDIT PURPOSES.

**Signature of Chief School Administrator_____
Title

* Rural High School Districts and Common School Districts operating an elementary school, if sharing costs, must have two applications.

** The County Superintendent is chief administrator for all schools of fewer than four teachers.

DATA FOR DETERMINATION OF PRIORITY RATING

A. Strengthened Program of Instruction

63

- (1) The acquired equipment and materials will be used to improve instruction in the following subjects: (Encircle new courses offered.)

Subjects Involved	Grade Level Taught	Enrollment
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

- (2) Have the teachers involved participated in the planning of this project? Yes___ No___
- (3) Have outside consultants been used in developing this project? Yes___ No___
- (4) Has your Board of Education or School Board approved this project? Yes___ No___
- (5) Is this project planned as a part of a continuing program for improvement? Yes___ No___

B. Staff Competency

- (1) How many teachers are involved in the project? _____
- (2) Give the number of the above indicated teachers who have taken instruction (exclusive of correspondence) within the past five years _____
- (3) Give number of above indicated teachers who have participated in institutes sponsored by the NDEA or NSF. _____
- (4) Secondary Teachers (Omit if project is elementary only)
- (a) Number involved in the project holding a master's degree _____
- (b) Number involved in the project meeting present subject and field requirements for: _____

Comprehensive_____ Standard_____ Approved_____

B. Staff Competency (Continued)

(5) Elementary Teachers (Omit if project is secondary only)

64

(a) Number with 3-year degree elementary certificate
(or higher) _____(b) Number with above certification who hold the
master's degree or higher _____

(c) Number with less than baccalaureate degree _____

(6) (Foreign Language only) Give number of above
indicated teachers who have had specific instruction
in language laboratory methods _____

C. Facilities Basic to Improved Program

(1) Are the equipment and/or materials requested in
your project basic to improved instruction?

Yes____ No____

(2) Is your request for minor remodeling designed
exclusively for the better utilization of equip-
ment and materials herein requested?

Yes____ No____

(3) Does your program show proper balance of audio-
visual, laboratory, and printed materials?

Yes____ No____

D. Effort of Local District

(1) Is your district of permanent status and not
about to be disorganized?

Yes____ No____

(2) In terms of its financial ability, rate the district's
overall support of its educational program during
the past three years:

Excellent____ Good____ Fair____ Poor____

(3) Extent of district effort:

(a) Valuation_____ Levy_____mills

(b) Per pupil cost (previous school year) Elementary_____

(c) Per pupil cost (previous school year) Secondary _____

E. Balanced Education Program

(1) How does the total amount requested for the project compare with
the amount your budget has normally provided in previous year?

Less____ About the same____ More____ At least double____

E. Balanced Education Program (continued)

65

- (2) Will this project curtail the purchase of instructional materials and equipment needed in other subject areas? Yes___ No___
- (3) Will the project be administered so that the total instructional program will be kept in balance? Yes___ No. ___

F. Utilization of Facilities

- (1) Will the teachers of this instructional area have first access to facilities acquired through this project? Yes___ No___
- (2) Approximately what per cent of the school day will the equipment and/or materials be utilized? _____
- (3) Have you planned adequate storage facilities to protect equipment and materials? Yes___ No___
- (4) Have you arranged for guarantee and servicing of equipment to be acquired? Yes___ No___

PLEASE DESCRIBE BRIEFLY HOW THIS PROJECT CONTRIBUTES TO AN IMPROVED INSTRUCTIONAL PROGRAM.

Indicate what plans have been made for the upgrading and strengthening of this subject area and how this project relates to your future plans. 66

LIST OF EQUIPMENT AND MATERIALS SUBMITTED FOR APPROVAL

67

This list includes only items from the OFFICIAL LIST OF EQUIPMENT AND MATERIALS. (Other items of equipment and/or materials for consideration are submitted on a separate page.)

No. of Items	Name of Item or title	Model Number (if any)	Manufacturer or Publisher	Cost per Item	Total
--------------------	--------------------------	-----------------------------	---------------------------------	---------------------	-------

GRAND TOTAL OF PROJECT

(Use other sheets if necessary, similarly organized.)

REQUEST FOR MINOR REMODELING

68

Approved only when the request for remodeling is for the better utilization of equipment and materials acquired under the Act. Therefore, remodeling cannot be requested by itself. For a general interpretation of what constitutes minor remodeling, see Pages 16-17 of the Instructional Guide.

<u>Equipment (List</u> only. Do not include cost.)	Brief Description of Minor Remodeling to better facilitate use	Break Down of Cost Estimate (plumbing, electrical, etc.)
--	--	--

(Submit in triplicate)

Science, Math, M. F. L. Project No. _____
(Circle one)

REIMBURSEMENT CLAIM AND VERIFICATION OF EXPENDITURES
Under Title III of Public Law 85-864

69

Superintendent of Public Instruction
Division of Instructional Services
801 Harrison
Topeka, Kansas

Name of School _____
Address _____

I certify that those items of equipment and materials contained in Project No. _____ approved on _____, 19__, have been received and paid for in the amount shown below.

I further certify that all items will be used for the improvement of instruction in science, mathematics, or modern foreign language in the public elementary and/or secondary schools of this District.

I further certify that paid invoices are on file for audit purposes and will be kept for three years.

This project is complete, incomplete. (Circle one).

Total approved expenditures for the above project areas follows: (This is the total spent even though it exceeds the amount approved.)

1. For acquisition of equipment
and/or materials

Elementary	\$ _____
Secondary	_____
Total	_____

2. For Minor Remodeling

Elementary	\$ _____
Secondary	_____
Total	_____

3. Total Expenditures for Acquisition
of Equipment and/or Material
and Minor Remodeling

\$ _____

I hereby claim reimbursement in the amount of \$ _____. This amount does not exceed 50% of our total expenditures nor does it exceed the amount which has been approved.

Signature _____
Chief School Administrator

Date _____

DEPARTMENT USE ONLY

APPROVED FOR PAYMENT:

Paid _____
Warrant Number _____ Date _____

Director

Date

AN ANALYSIS OF PARTICIPATION OF KANSAS
PUBLIC SCHOOLS IN THE NATIONAL DEFENSE
EDUCATION ACT OF 1958, TITLE III

by

GARY DUANE LATIMER

B. A., University of Wichita, 1960

AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1965

It was the purpose of this study (1) to determine the extent of participation of Kansas public schools in the implementation of Title III of the National Defense Education Act of 1958; (2) to make an analysis of the purchases made under the provisions of Title III of the Act, showing the characteristics of approved projects as they related to such factors as school size, assessed valuation, and subject-area emphasis; (3) to reveal possible changes in types of projects submitted by schools between fiscal year 1959 and fiscal year 1964.

The study required a random selection of 100 Kansas approved Title III project applications for each of the fiscal years, 1958-59 and 1963-64. The procedure in selecting the 100 project applications was to use the per cents of science, mathematics and modern foreign language project requests compared to the total number of Kansas Title III requests for 1958-59 and 1963-64.

Science, in 1958-59, accounted for 84 per cent of Kansas' Title III project approvals. Eighty-four of the 100 applications selected for examination were 1958-59 science project requests. Every third application for the three subjects was selected beginning with file number one for science, file number two for mathematics and file number three for modern foreign language.

Selections of applications for 1963-64 were made in

the same manner, but with every seventh file being selected.

Findings from the study showed Kansas schools exhibited the patterns of the Nation, as a whole, regarding N.D.E.A. program spending.

Forty of 100 school districts selected in 1958-59 had enrollments under 300 and assessed valuations of less than 4 million dollars. Twenty-four such schools were found in the selection for the fiscal year 1963-64.

Kansas school districts with small enrollments and low assessed valuations were active in the Title III program, but their requests were modest. Smaller Kansas schools did not reflect a favorable balance, project-wise, in the three subject fields covered under Title III. Nearly two-thirds of the schools with enrollments under three hundred had no previously approved project in mathematics or modern foreign language.

Although small, financially disadvantaged districts participated, their emphasis on modern foreign language projects because of the higher cost was lacking. A large number of smaller Kansas districts did not request funds for modern foreign language assistance in the six-year period. Twenty-four of twenty-five schools which had assessed valuations between two and four million dollars had not applied. Twelve districts with assessed valuations between four and six million dollars had not requested funds in this area.

Kansas schools spent 77.3 per cent of the allotted Title III funds in fiscal years 1958-1964 for science purposes. All school except one sampled in fiscal year 1963-64 had previous project approvals in science. Science projects had higher cost ranges when compared with mathematics and modern foreign language.